

ACTION SHEET 35

between

The Power Reactor and Nuclear Fuel Development Corporation of Japan (PNC)
and

The United States Department of Energy (DOE)
for

Feasibility Study of NDA Technique for Holdup Measurements at Ningyo Enrichment Plant (Phase-I)

1. Introduction

Under Article II (Area of Cooperation) of the Agreement between PNC and DOE for Cooperation in Research and Development Concerning Nuclear Material Control and Accounting Measures for Safeguards and Nonproliferation (herein called the "Agreement"), dated September 15, 1993, DOE and PNC undertake to carry out a cooperative effort on the joint feasibility study of methods to perform nondestructive (NDA) holdup at the Ningyo-Toge Enrichment Plant in Japan.

2. Scope of Work

This action sheet provides for a feasibility study to evaluate the technical approaches for measuring the uranium holdup in three different regions of the enrichment facility. These areas include the two cascade halls, the chemical traps, cold traps, and the 200-l waste drums.

Specifications and facility specific constraints will be obtained from the Ningyo Toge Enrichment Facility and PNC will be consulted to establish the measurement objectives and the preferred approaches. After a joint decision is made establishing the optimum technical approach, MCNP calculations will be performed to quantify the expected performance of the NDA holdup measurement system in Phase-II feasibility study on new Action Sheet. The potential use of both neutron and gamma-ray NDA systems will be included in the study. The three sources of holdup and waste listed above will be included in the evaluation. The use of the U-234 (alpha/neutron) yield from the UF₆ will be evaluated for passive neutron NDA for each of the holdup areas.

The work performed under this Action Sheet shall be performed at the Los Alamos National Laboratory (LANL) and PNC facilities in accordance with the terms and conditions of the Agreement.

3. Program Management

LANL is responsible for developing the technical approach for measuring holdup. Work to be done is identified in Appendix I and is limited to techniques for nuclear safeguards applications. PNC is responsible for providing information required for completion of the joint study. Appendix II identifies key personnel working on this project.

DOE and LANL shall work directly with PNC in planning tasks and resolving programmatic and technical questions. LANL shall start by developing and circulating separate work plans with projected milestones for each task and update the work plans with PNC concurrence as work progresses.

LANL shall prepare brief quarterly letter progress reports on each task and circulate them to PNC, DOE, and to other pertinent organizations as requested by PNC.

LANL and PNC shall prepare and present written and oral reports at meetings of the Permanent Coordinating Group (PCG).

4. Fiscal Management

PNC shall make a cash contribution with the sum of \$90,000 in United States dollars to conduct the feasibility study of NDA holdup measurements at the Ningyo-Toge Enrichment Plant as defined in Appendix I of this Action Sheet in the following manner:

- a.) A contribution of \$40,000 in United States dollars shall be due and payable upon receipt of an invoice to be issued in JFY 1997 (Japanese Fiscal Year) after the date of signature of the Action Sheet.
- b.) A contribution of \$50,000. in United States dollars shall be due and payable upon receipt of an invoice to be issued in April 1998. This payment is subject to approval and the appropriation of necessary funding by the Japanese Government for Japanese Fiscal Year 1998 (JFY 1998).

All contributions by PNC shall be due and payable within thirty days of receipt by PNC of an invoice from DOE, subject to availability of appropriated funds to PNC.

DOE shall be responsible for the budget planning and financial management and shall make best efforts to complete the PNC-funded activities in the Appendix I satisfactorily and within the cash contribution by PNC. DOE costs are determined in accordance with DOE's policy for costing work it performs for others as set forth in 10 CFR Part 1009. The total cost to PNC for DOE's performance of work under this Action Sheet shall not, without PNC's prior consent, exceed the contributions set forth above.

DOE shall not begin or carry out work prior to entry into force of the Agreement and Action Sheet and receipt of the required payment in advance. Work shall not be continued after funds from PNC have been depleted.

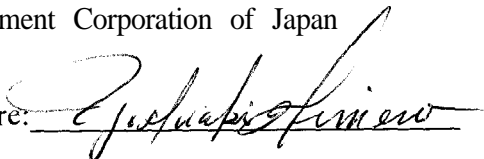
Throughout the duration of work under this Action Sheet, PNC shall provide sufficient funds in advance to reimburse DOE for causing LANL to perform the work described in this Action Sheet, and DOE shall have no obligation to perform in the absence of adequate advance funds. Payment in advance from PNC shall be sufficient to cover the expected obligation and cash

requirements of the work until a subsequent request for payment in advance can be made, collected, and recorded. In this regard, sufficient advance funds shall be provided to maintain, at a minimum, a continuous 90-days advance of funds for expected DOE fund requirements during the life of this Action Sheet. Advances shall be sufficient to cover expected termination costs that DOE would incur on behalf of PNC.

5. Duration and Termination

This Action Sheet shall enter into force upon the later date of signature and shall continue in force for a two year period. In case all activities under this agreement are not completed in the above mentioned term, agreement for extension shall be concluded by both parties.

For the Power Reactor and Nuclear Fuel
Development Corporation of Japan

Signature: 


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Name: YOSHIAKI HIMENO

Title: Director, International Div.

Date: Jan 30, 1998

For the United States
Department of Energy

Signature: 

Printed

Name: Kenneth Sanders

Title: Division Director

Date: 19 Feb. 1998

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APPENDIX I

Feasibility Study of NDA Technique for Holdup Measurements at Ningyo Enrichment Plant (Phase-I)

1. Study Outline

This action sheet involves the joint feasibility study of the NDA for measuring uranium holdup in the Ningyo-Toge enrichment plant. The study outline is as follows:

- 1) LANL will obtain facility specifications and constraints from PNC.
- 2) LANL will develop the technical approaches to the measurement.
- 3) LANL will document the Phase-I feasibility study and to provide PNC with a summary report.

2. Sites

This work will be conducted at:

Los Alamos National Laboratory
Los Alamos, New Mexico, USA

and Power Reactor and Nuclear Fuel
Development Corporation
Ningyo-Toge, Japan

3. Programmatic Responsibilities

LANL will be responsible for providing best efforts within the funding and schedule for the feasibility study. PNC will be responsible for facility specific specifications and constraints. As more detailed program plans are developed, specific responsibilities will be better defined and delineated.

4. Schedule

This schedule will be followed on a best-effort basis commencing on receipt of funding and availability of parts.

ID	Task Name	97		1998				1999			
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Action Sheet 33 - Ningyo-Toge Holdup										
2	Facility specifications and constraints-PNC										
3	Develop measurement & technical approaches-LANL										
4	Prepare report										

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APPENDIX II

Feasibility Study of NDA Technique for Holdup Measurements at Ningyo Enrichment Plant (Phase-I)

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